

In the Claims:

- 1    1. (withdrawn) A torque-transmitting assembly comprising:
  - 2    a) a female coupling member with a bore;
  - 3    b) a radially flexible member, received within the bore, defining a hollow shape
  - 4    with an opening; and
  - 5    c) an elongated shaft member made of a super-elastic alloy, received within the
  - 6    opening,
- 7                whereupon relative motion among at least two of the members causes the
- 8    radially flexible member to contact the shaft, inducing a super-elastic activation in
- 9    the shaft that urges the shaft and radially flexible member into surface-to-surface
- 10   contact, securing the members together in a fixed relative position.
- 1    2. (withdrawn) The assembly of Claim 1 wherein the radially flexible member has
- 2    an external surface that frictionally engages the bore upon relative motion.
- 1    3. (withdrawn) The assembly of Claim 1 wherein the shaft is tubular with a
- 2    cannulation.
- 1    4. (withdrawn) The assembly of Claim 3 wherein the bore of the female coupling
- 2    member further comprises a cannulation aligned with the shaft cannulation, for
- 3    common passage of a guide wire there through.

- 1    5. (withdrawn) The assembly of Claim 1 further comprising an inter-positional  
2    polymer sleeve for transmitting bending stress in the assembly.
  
- 1    6. (withdrawn) The assembly of Claim 1 wherein the contact occurs in one or  
2    more areas that frictionally carries the applied torque.
  
- 1    7. (withdrawn) The assembly of Claim 6 wherein the contact area is calibrated so  
2    that the contact slips at a preset torque before the failure strength of the shaft is  
3    reached.
  
- 1    8. (withdrawn) The assembly of Claim 1 wherein the female coupling member  
2    further comprises a counter-bore and the radially flexible member has an exterior  
3    surface adapted for engagement within the counter-bore.
  
- 1    9. (withdrawn) The assembly of Claim 8 wherein the radially flexible member is  
2    compressed within the counter-bore.
  
- 1    10. (withdrawn) The assembly of Claim 1 wherein the female coupling member is  
2    a fitting that connects the assembly to a cutting tool-bit or powered instrument.
  
- 1    11. (withdrawn) The assembly of Claim 1 wherein the female coupling member  
2    further comprises a fitting with a cutting tool-bit.
  
- 1    12. (withdrawn) The assembly of Claim 11 wherein the assembly is further  
2    connected to a powered instrument.
  
- 1    13. (withdrawn) The assembly of Claim 1 wherein the radially flexible member is  
2    a split collet.

1    14. (withdrawn) The assembly of Claim 1, the radially flexible member being in  
2    the form of a collar and made of super-elastic alloy, wherein the relative motion  
3    further induces a super-elastic activation of the collar.

1    15. (withdrawn) The assembly of Claim 1 wherein the collar further comprises a  
2    washer.

1    16. (withdrawn) The assembly of Claim 15 wherein the collar further comprises a  
2    series of washers.

1    17. (withdrawn) The assembly of Claim 14 wherein the super-elastic alloy is a  
2    nickel-titanium alloy.

1    18. (currently amended) A torque-transmitting coupling assembly comprising:

2    a) a split collet member having an exterior surface and an opening;

3    b) an elongated, tubular shaft member made substantially of an alloy selected from  
4    a group of alloys consisting of super-elastic, bi-metal alloys and super-elastic, tri-  
5    metal alloys, including nickel-titanium super-elastic alloys, received within the  
6    opening; and

7    c) a sleeve member having a bore that receives the exterior surface of the collet,

8    whereupon relative motion among at least two of the members causes the opening  
9    to contact the shaft, inducing a super-elastic activation in the shaft that urges the  
10   shaft and the collet being urged into surface-to-surface contact sufficiently to  
11   induce a martensitic activation of super-elastic alloy, thus securing the members  
12   together in a fixed relative position.

1   **19.** (currently amended) The assembly of Claim 18 wherein interfering  
2   engagement of the exterior surface with the bore compresses the opening against  
3   the shaft, inducing the martensitic super-elastic activation in the shaft.

1   **20.** (original) The assembly of Claim 18 wherein the shaft is tubular with a  
2   cannulation.

1   **21.** (original) The assembly of Claim 20 wherein either the sleeve or collet has a  
2   cannulation aligned with the shaft cannulation, for common passage of a guide  
3   wire there through.

1   **22.** (original) The assembly of Claim 18 further comprising an inter-positional  
2   polymer sleeve for transmitting bending stress in the assembly.

1   **23.** (previously presented) The assembly of Claim 18 wherein surface-to-surface  
2   engagement occurs along one or more contact areas that frictionally carries the  
3   applied torque.

1   **24.** (original) The assembly of Claim 23 wherein the contact area is calibrated to  
2   slip at a preset torque before the failure strength of the shaft is reached.

1   **25.** (previously presented) The assembly of Claim 18 wherein the collet is  
2   adapted for connection to a cutting tool fitting or powered instrument.

1   **26.** (previously presented) The assembly of Claim 18 wherein the collet further  
2   comprises a cutting tool fitting.

1   **27.** (previously presented) The assembly of Claim 26 further adapted for coupling  
2   to a powered instrument.

- 1    28. (withdrawn) A torque-transmitting coupling assembly comprising:
    - 2    a) a fitting member formed with a counter-bore;
    - 3    b) a collar member made of super-elastic alloy, having an exterior surface and an
    - 4    opening, the collar being located in the counter-bore; and
    - 5    c) an elongated shaft member made of a super-elastic alloy, received within the
    - 6    opening;
  - 7                whereupon relative motion between the fitting and the collar causes the
  - 8    collar to contact the shaft, inducing a super-elastic activation in the shaft that
  - 9    engages the shaft and collar into surface-to-surface contact, securing the members
  - 10   together in a fixed relative position.
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- 1    29. (withdrawn) The assembly of Claim 28 wherein engagement of the exterior
  - 2    surface with the counter-bore super-elastically compresses the opening against the
  - 3    shaft.
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- 1    30. (withdrawn) The assembly of Claim 29 wherein the collar further comprises a
  - 2    washer.
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- 1    31. (withdrawn) The assembly of Claim 30 further comprising a series of washers.
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- 1    32. (withdrawn) The assembly of Claim 28 wherein the super-elastic alloy is a
  - 2    nickel-titanium alloy.
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- 1    33. (withdrawn) The assembly of Claim 28 wherein the shaft is tubular with a
  - 2    cannulation.

1    34. (withdrawn) The assembly of Claim 33 wherein the fitting has a cannulation  
2    aligned with the shaft cannulation, for common passage of a guide wire there  
3    through.

1    35. (withdrawn) The assembly of Claim 28 further comprising an inter-positional  
2    polymer sleeve for transmitting bending stress in the assembly.

1    36. (withdrawn) The assembly of Claim 29 wherein the frictional engagement  
2    occurs along one or more contact areas that frictionally carries the applied torque.

1    37. (withdrawn) The assembly of Claim 36 wherein the contact area is calibrated  
2    so that the coupling slips at a preset torque before the fatigue strength of the shaft  
3    is reached.

1    38. (withdrawn) The assembly of Claim 28 wherein the fitting is connected to a  
2    cutting tool-bit or powered instrument.

1    39. (withdrawn) The assembly of Claim 28 wherein the fitting further comprises a  
2    cutting tool-bit.

1    40. (withdrawn) The assembly of Claim 39 further coupled to a powered  
2    instrument.

1    41. (withdrawn) A method of forming a torque-transmitting assembly, comprising  
2    the steps of:

3    a) providing a female coupling member with a bore;  
4    b) providing a radially flexible member with an external surface and an opening,  
5    situating the radially flexible member within the bore

6    c) providing an elongated shaft member made of a super-elastic alloy, received  
7    within the opening; and

8    d) relatively moving at least two of the members, causing the radially flexible  
9    member to contact the shaft, inducing a super-elastic activation in the shaft that  
10   urges the shaft and radially flexible member into surface-to-surface contact,  
11   securing the members together in a fixed relative position.

1    42. (withdrawn) The method of Claim 41 wherein step d) further comprises  
2    frictionally engaging the members along a contact area that carries the applied  
3    torque, the contact area being calibrated to slip at a preset torque before the failure  
4    strength of the shaft is reached.

1    43. (withdrawn) The method of Claim 42 further comprising the steps of providing  
2    the female coupling member with a counter-bore, providing the radially flexible  
3    member in the form of a collar made of super-elastic alloy and inducing a super-  
4    elastic activation in the collar.

1    44. (withdrawn) The method of Claim 42 wherein step a) further comprises providing a  
2    radially flexible member in the form of a split collet.

1    45. (withdrawn) A flexible surgical reamer having a torque-transmitting assembly  
2    and comprising:

3    a) a fitting member formed with a counter-bore and including a cutting tool-bit;  
4    b) a collar member made of super-elastic alloy, located in the counter-bore; and

- 5       c) an elongated shaft member made of a super-elastic alloy, adapted for receipt
  - 6       within the collar;
  - 7               whereupon relative motion among the members causes the opening to
  - 8       contact the shaft, inducing a super-elastic activation in the shaft that urges the
  - 9       shaft and the collar into surface-to-surface contact, securing the members together
  - 10      in a fixed relative position.
- 1       46. (withdrawn) The reamer of Claim 45 wherein the collar is an annular member.
  - 1       47. (withdrawn) The reamer of Claim 46 wherein the collar further comprises a
  - 2       washer.
  - 1       48. (withdrawn) The reamer of Claim 47 wherein the collar further comprises a
  - 2       series of washers.
  - 1       49. (withdrawn) The reamer of Claim 48 wherein the collar is pre-assembled with
  - 2       the fitting.
  - 1       50. (withdrawn) The reamer of Claim 45 further comprising an inter-positional
  - 2       polymer sleeve for transmitting bending stress in the assembly.
  - 1       51. (withdrawn) The reamer of Claim 45 wherein the contact occurs along an area
  - 2       that frictionally carries the applied torque.
  - 1       52. (withdrawn) The reamer of Claim 51 wherein the contact area is calibrated to slip at
  - 2       a preset torque before the failure strength of the shaft is reached.
  - 1       53. (withdrawn) The reamer of Claim 45 wherein the shaft is tubular, with a
  - 2       cannulation.

1   **54. (withdrawn) The reamer of Claim 53 wherein the fitting has a cannulation that**  
2   **aligns with the shaft cannulation for passage of a guide wire through the reamer.**

1   **55. (withdrawn) A flexible surgical reamer having a torque-transmitting assembly**  
2   **and comprising:**

3   **a) a radially flexible member having a split collet with an exterior surface and an**  
4   **opening, and including a cutting tool-bit;**

5   **b) an elongated shaft member made of a super-elastic alloy, received within the**  
6   **opening; and**

7   **c) a sleeve having a bore that receives the exterior surface,**

8   **whereupon relative motion among the members causes the opening to contact the**  
9   **shaft, inducing a super-elastic activation in the shaft that urges the shaft and the**  
10   **collet into surface-to-surface contact, securing the members together in a fixed**  
11   **relative position.**

1   **56. (withdrawn) The reamer of Claim 55 wherein the exterior surface is**  
2   **compressed by the bore, further contracting the opening against the shaft to induce**  
3   **the super-elastic activation.**

1   **57. (withdrawn) The reamer of Claim 55 wherein the shaft is tubular with a**  
2   **cannulation for passage of a guide wire there through.**

1   **58. (withdrawn) The reamer of Claim 56 wherein the opening interferingly**  
2   **receives the shaft and is expanded to compress the exterior surface against the**  
3   **bore.**

- 1    59. (withdrawn) The reamer of Claim 55 further comprising an inter-positional  
2    polymer sleeve for transmitting bending stress in the assembly.
  
- 1    60. (withdrawn) The reamer of Claim 55 wherein the contact occurs along an area  
2    that frictionally carries the applied torque.
  
- 1    61. (withdrawn) The reamer of Claim 60 wherein the contact area is calibrated to  
2    slip at a preset torque before the failure strength of the shaft is reached.
  
- 1    62. (withdrawn) The reamer of Claim 61 wherein the shaft is further connected to  
2    a powered instrument.